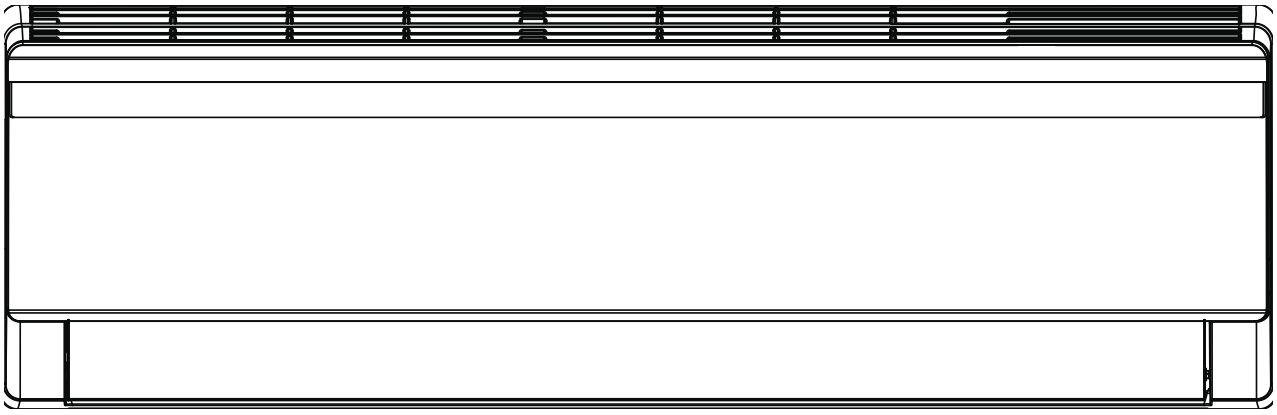
Butterfly Energy Systems

Air Intelligence Series



INVERTER

User Manual and Installation Guide

(For Indoor Head Units)

BESM-09AI2X - BESM-12AI2X - BESM-18AI2X

Thank you for choosing Butterfly Energy Systems, please review user manual and installation guide before installation and retain for future reference.

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Never attempt.

Be sure to follow this instruction

The physical product may differ from the drawing in this manual for different display If there are some differences between them, please refer to the physical product as the standard.

This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.
Children should be supervised to ensure they are away from the appliance.

Do not dispose this product as unsorted municipal waste. Collection of such waste separately for special treatment is necessary.

Important Reminders

Basic precautions should be taken to reduce the risk of injury to person, fire or electrical shock when operating an electrical appliance including the following:

1.Read all instructions before using the appliance.
2.This appliance is hot when in use. To avoid burns,do not touch bare skin on hot surfaces. Keep combustible materials such as clothing, pillows, bedding, and curtains away from the front of the appliance. And keep objects at least 1 meter away from the sides of the appliance.
3.This appliance is cold when in use. Be mindful of the coldair blowing from the front. Arrange household items such as furniture and plants accordingly.
4.This appliance is moving when in operation. To avoid injury, do not touch moving pieces or apply force to moving pieces in any manner.
5.Do not insert or allow foreign objects to enter any ventilation or exhaust opening. This many cause injury, electrical shock, fire or damage to the appliance.
6.To prevent a possible fire, do not block air intakes or exhaust in any manner.
7.Do not stand or rest any object on top of the appliance.
8.Do not operate if there is any damage to the appliance.
9.The installation, repairs, and modifications to the appliance are only to be performed by a trained technician.
10.Children, persons with reduced mental, sensory, or physical capabilities, or lack of knowledge and experience should not operate this appliance, unless they have been given supervision or instruction.
11.Use this appliance only as described in the manual. Any otheruse not recommended by the manufacture may cause fire, electricshock, or injury to persons.

◆ Notices for use

Working principle and special functions for cooling

Principle:

Air conditioner absorbs heat in the room and transmit to outdoor and discharged, so that indoor ambient temperature decreased, its cooling capacity will increase or decrease by outdoor ambient temperature.

Anti-freezing function:

If the unit is running in COOL mode and in low temperature, there will be frost formed on the heat exchanger, when indoor heat exchanger temperature decreased below 0℃ the indoor unit microcomputer will stop compressor running and protect the unit.

Working principle and special functions for heating

Principle:

* Air conditioner absorbs heat in the room and transmit to outdoor and discharged, will increase, its heating capacity will decrease by outdoor ambient temperature.
  so that indoor ambient temperature increased, so room heating capacity.
* If outdoor temperature got lower, please operate with the other heating ventilating equipments.

Defrosting:

* When outdoor temperature is low but high humidity, after a long while running, frost will form on outdoor unit, that will effect the heating effect, at this time, the auto defrosting function will act, the heat running will stop for 8-10mins.
* During the auto defrosting, the fan motors of indoor unit and outdoor unit will stop.
* During the defrosting, the indoor indicator flashes, the outdoor unit may emit vapor. This is due to the defrosting, it isn't malfunction.
* After defrosting finished, the heating will recover automatically.

Anti-freezing function:

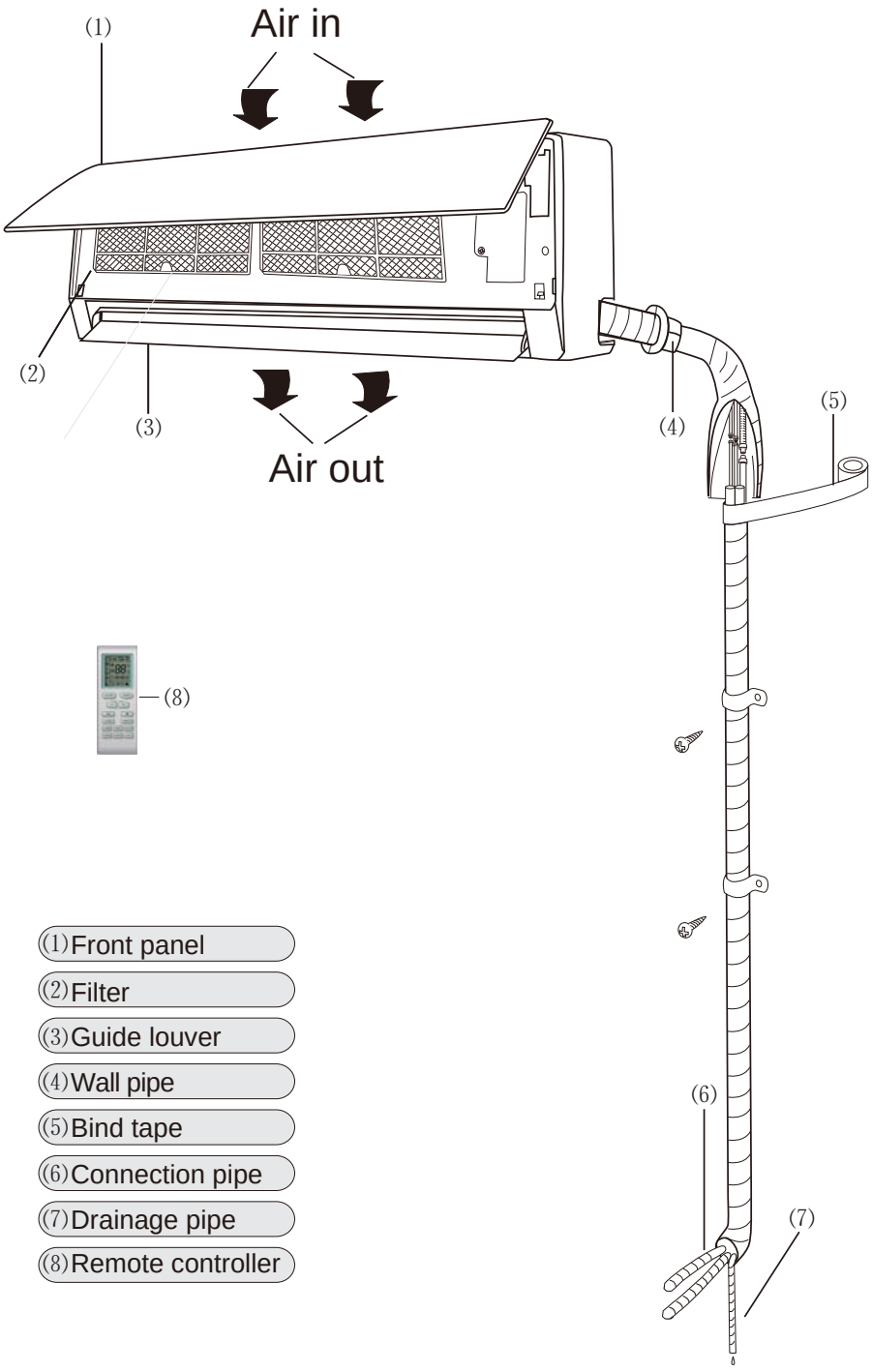
In "HEAT" mode, if in the following status, the indoor heat exchanger haven't achieve the certain temperature, that the indoor unit will not act, in order to prevent cool air blowing. (Within 3mins)

1. Heating starts.
2. After Auto defrosting finished.
3. Heating under the low temperature.

The climate type of this unit is according to the nameplate.

◆ Names and functions of each part

Indoor unit



(1) Front panel
(2) Filter
(3) Guide louver
(4) Wall pipe
(5) Bind tape
(6) Connection pipe
(7) Drainage pipe
(8) Remote controller

◆ Operation of Remote Controller

Remote Controller Description

1 ON/OFF
Press it to start or stop operation

2 MODE
Press it to select operation mode (AUTO/COOL/DRY/FAN/HEAT)

3 + : Press it to increase temperature setting

4 – : Press it to decrease temperature setting

5 FAN
Press it to set fan speed

6
Press it to set swing angle

7 TIMER ON
Press it to set auto-on timer

8 TIMER OFF
Press it to set auto-off timer

9 CLOCK
Press it to set clock

10 X-FAN (page 8)

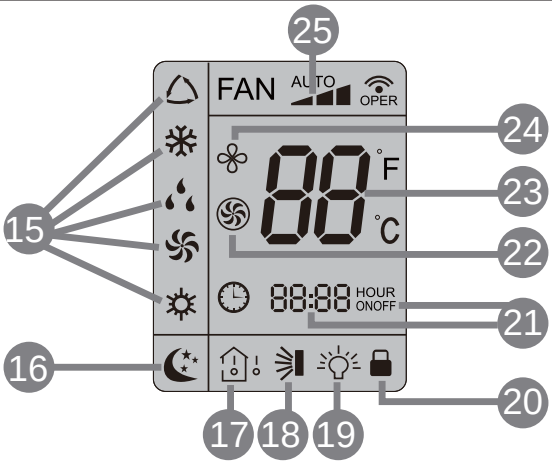
11 TEMP (page 8)

12 TURBO(page 8)

13 SLEEP(page 8)

14 LIGHT
Press it to turn on/off the light.

◆ Operation of Remote Controller



15 MODE icon:

If MODE button is pressed, current operation mode icon (AUTO), (COOL), (DRY), (FAN) or (HEAT is only for heat pump models) will show.

16 SLEEP icon:

is displayed by pressing the SLEEP button. Press this button again to clear the display.

17 TEMP icon:

Pressing TEMP button, (set temperature), (indoor ambient temperature) (outdoor ambient temperature) and blank is displayed circularly.

18 Up & down swing icon:

is displayed when pressing the up & down swing button. Press this button again to clear the display.

19 LIGHT icon:

is displayed by pressing the LIGHT button. Press LIGHT button again to clear the display.

20 LOCK icon:

is displayed by pressing "+" and "-" buttons simultaneously.Press them again to clear the display.

21 SET TIME display:

After pressing TIMER button, ON or OFF will blink.This area will show the set time.

22 TURBO icon:

is displayed when pressing the TURBO button.Press this button again to clear the display.

23 DIGITAL display:

This area will show the set temperature.During defrosting operation, "H1" will be displayed.

24 X-FAN icon:

is displayed when pressing the X-FAN button. Press this button again to clear the display.

25 FAN SPEED display:

Press FAN button to select the desired fan speed setting(AUTO-Low-Med-High).Your selection will be displayed in the LCD windows, except the AUTO fan speed.

◆ Operation of Remote Controller

Remote Controller Description

1 ON/OFF:

Press this button to turn on the unit. Press this button again to turn off the unit.

2 MODE:

Each time you press this button, a mode is selected in a sequence that goes from AUTO, COOL, DRY, FAN, and HEAT *, as the following:

*Note: Only for models with heating function.

After energization, AUTO mode is defaulted. In AUTO mode, the set temperature will not be displayed on the LCD, and the unit will automatically select the suitable operation mode in accordance with the room temperature to make indoor room comfortable.

3 + :

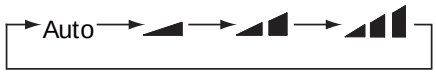
Press this button to increase set temperature. Hold it down for above 2 seconds to rapidly increase set temperature. In AUTO mode, set temperature is not adjustable.

4 - :

Press this button to decrease set temperature. Hold it down for above 2 seconds to rapidly decrease set temperature. In AUTO mode, set temperature is not adjustable.

5 FAN:

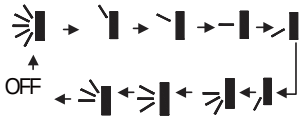
This button is used for setting fan speed in the sequence that goes from AUTO, , , to , then back to Auto.



Low speed Medium speed High speed

6 :

Press this button to set up & down swing angle, which circularly changes as below:



This remote controller is universal. If any command , or is sent out, the unit will carry out the command as

indicates the guide louver swings as:

◆ Operation of Remote Controller

7 TIMER ON:

Press this button to initiate the auto-ON timer. To cancel the auto-timer program, simply press this button again.

After pressing this button, 🕒 disappears and "ON "blinks. 00:00 is displayed for ON time setting. Within 5 seconds, press + or - button to adjust the time value. Every press of either button changes the time setting by 1 minute. Holding down either button rapidly changes the time setting by 1 minute and then 10 minutes. Within 5 seconds after setting, press TIMER ON button to confirm.

8 TIMER OFF:

Press this button to initiate the auto-off timer. To cancel the auto-timer program, simply press the button again. TIMER OFF setting is the same as TIMER ON.

9 CLOCK:

Pressing CLOCK button, 🕒 blinks. Within 5 seconds, pressing + or - button adjusts the present time. Holding down either button above 2 seconds increases or decreases the time by 1 minute every 0.5 second and then by 10 minutes every 0.5 second. During blinking after setting, press CLOCK button again to confirm the setting, and then 🕒 will be constantly displayed.

10 X-FAN:

Pressing X-FAN button in COOL or DRY mode, the icon ✿ is displayed and the indoor fan will continue operation for 10 minutes in order to dry the indoor unit even though you have turned off the unit.

After energization, X-FAN OFF is defaulted. X-FAN is not available in AUTO, FAN or HEAT mode.

Note: X-FAN is the alternative expression of BLOW for the purpose of understanding.

11 TEMP:

Press this button, could select displaying the indoor setting temperature or indoor ambient temperature. When the indoor unit firstly power on it will display the setting temperature, if the temperature's displaying status is changed from other status to"⌂", displays the ambient temperature, 5s later or within 5s, it receives other remote controller signal that will return to display the setting temperature. if the users haven't set up the temperature displaying status, that will display the setting temperature.

12 TURBO:

Press this button to activate/deactivate the Turbo function which enables the unit to reach the preset temperature in the shortest time. In COOL mode, the unit will blow strong cooling air at super high fan speed. In HEAT mode, the unit will blow strong heating air at super high fan speed. (This function is not applicable for some models).

13 SLEEP:

Press this button to go into the SLEEP operation mode. Press it again to cancel this function. This function is available in COOL, HEAT (Only for models with heating function) or DRY mode to maintain the most comfortable temperature for you.

◆ Operation of Remote Controller

14 LIGHT:

Press LIGHT button to turn on the display's light and press this button again to turn off the display's light. If the light is turned on , is displayed. If the light is tunrned off, disappears.

15 Combination of "+" and "-" buttons: About lock

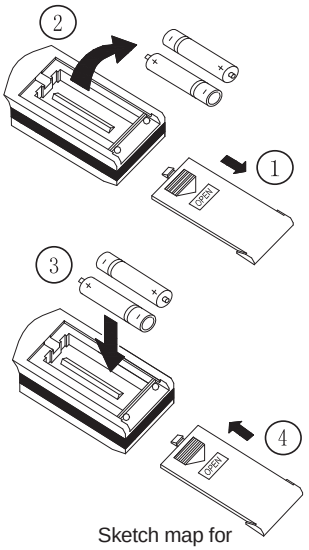
Press "+" and "-" buttons simultaneously to lock or unlock the keypad. If the remote controller is locked, displayed. In this case, pressing any button, blinks three times.

16 Combination of "MODE" and "-" buttons:About switch between Fahrenheit and Centigrade

At unit OFF, press "MODE" and "-" buttons simultaneously to switch between ℃ and ℉.

Replacement of Batteries

1. Remove the battery cover plate from the rear of the remote controller. (As shown in the figure)
2. Take out the old batteries.
3. Insert two new AAA1.5V dry batteries, and pay attention to the polarity.
4. Reinstall the battery cover plate.



Sketch map for replacing batteries

★ Notes:

- When replacing the batteries, do not use old or different types of batteries. Otherwise, it may cause malfunction.
- If the remote controller will not be used for a long time, please remove batteries to prevent batteries from leaking.
- The operation should be performed in its receiving range.
- It should be kept 1m away from the TV set or stereo sound sets.
- If the remote controller does not operate normally, please take the batteries out and reinsert them after 30 seconds. If it still can't operate properly, replace the batteries.

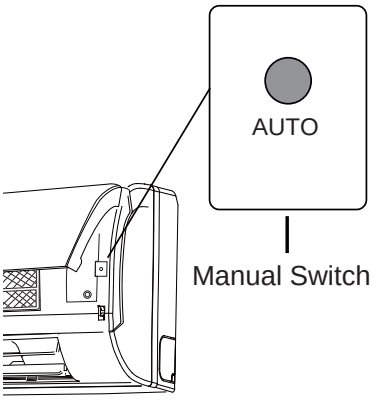
Emergency Operation

Emergency Operation

When the wireless remote controller is lost or damaged, please use the manual switch, at this time, it is running in Auto Run mode that will not change the temperature setting value and fan speed.

The manual switch can be operated as follow:

- At operation: When the unit stopped running, press ON/OFF button, unit will enter into AUTO RUN mode. The microcomputer will accord to the room temperature to select the (COOL, HEAT, FAN) mode automatically, to obtain the comfortable effect.
- At stopping: When the unit is running, press the ON/OFF button of the manual switch, the unit will stop work.



◆ Clean and care

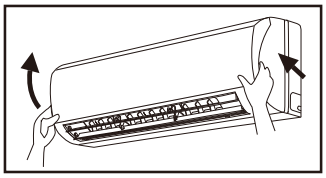
CAUTION

- Turn power off and pull out the power plug before cleaning air conditioner. Or it may cause electric shock.
- Never sprinkle water on the indoor unit for cleaning because it can cause an electric shock.
- Volatile liquid (e.g. thinner or gasoline) will damage the air conditioner. (So wipe the units with a dry soft cloth, or a cloth slightly moistened with water or cleanser.

Clean the front panel (make sure to take it off before cleaning)

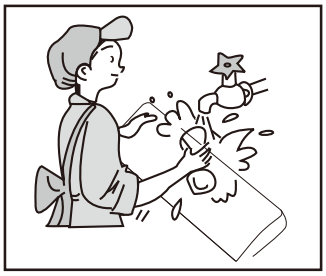
① Take off the front panel

Along the direction of arrows to lift the front panel up, meanwhile to hold both slots of the front panel and take it out forcibly and then can take it off.



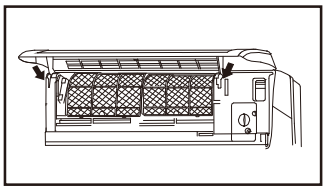
② Washing

Clean with a soft brush, water and neutral detergent and then dry it. (Note: Before cleaning the unit, please take down the displayer box firstly, then to wash the panel, if the unit has displayer on the front panel. Never use the water above 45℃ to wash the panel, or it could cause deformation or discoloration.)



③ Install front panel

Place two supporters of the front panel into the slots, along the direction of arrows to cover and clasp the front panel. As show in right figure.



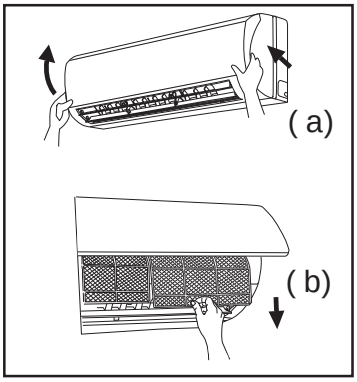
Cleaning the air filters (Recommended once every three months)

Note: If dust is much more around the air conditioner, the air filters should be cleaned many times. After taking off the filter, don't touch the fin of indoor unit, in order to avoid hurt your fingers.

◆ Clean and care

① Take down the air filter

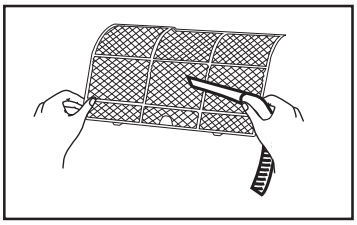
At the slot of surface panel to open an angle, pull the air filter downward and take it out.



② Cleaning

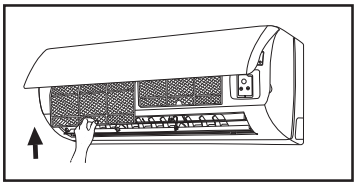
To clean the dust adhering to the filters, you can either use a vacuum cleaner, or wash them with warm water (the water with the neutral detergent should below 45℃). When the filters are very dirty (such as oil stain), and dry it in the shade.

NOTE: Never use water above 45℃ to wash, or it can cause deformation or discoloration. Never partch it by fire, or can cause a fire or deformation.

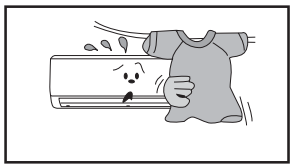


③ Reinsert the filters

Reinsert the filters along with the arrow head, then cover the surface panel and clasp it.



Check before use



① Be sure that nothing obstructs the air outlet and intake vents.

② Check that whether ground wire is properly connected or not.

③ Check that whether the batteries of air conditioner are changed or not.

④ Check that whether the installation stand of the outdoor unit is damaged or not. If damaged, please contact the dealer.

Maintain after use

① Turn main power off.

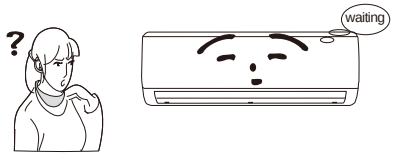
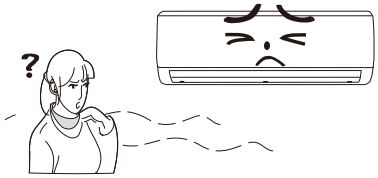
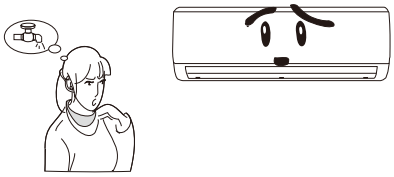
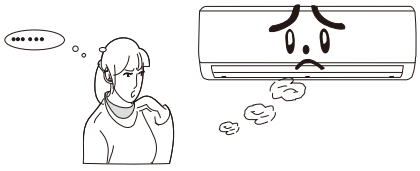
② Clean the filter and indoor and outdoor units' bodies.

③ Repaint the rubiginous place on the outdoor unit to prevent it from spreading.

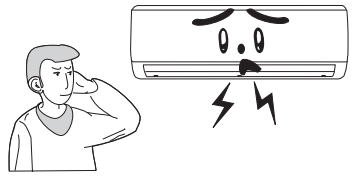
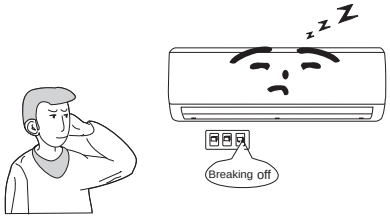
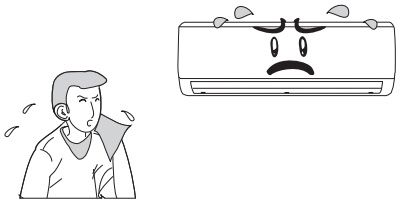
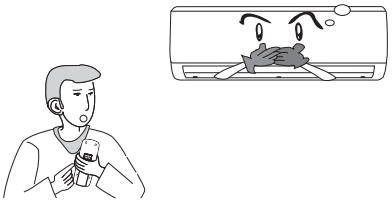
Troubleshooting

Warning

Do not repair the air conditioner at your discretion. Incorrect repair may cause electric shock or fire, so please contact Authorized Service Center for professional repair. Following checks prior to contact may save your time and costs.

Phenomenon	Troubleshooting
The unit can not operte immediately when the air conditioner is restarted. 	• Once the air conditioner is stopped, it will not operate in approximately 3 minutes to protect itself.
There's unusual smell blowing from the outlet after operation is started. 	• This is caused by the odors in the room which have been breathed into the air conditioner.
Sound of water flow can be heard during operation. 	• This is caused by the refrigerant flowing inside the unit.
Mist is emitted during cooling operation. 	• Because the air of the room is cooled down rapidly by the cold wind and it looks like the fog.

Troubleshooting

Phenomenon	Troubleshooting
Creaking noise can be heard when start or stop the unit. 	This is caused by the deformation of plastic due to the change of temperature.
Air conditioner does not operate at all. 	• Has the power been shut down? • Is the wiring loose? • Is the leakage protection switch in operation? • Is voltage higher or lower? • Is TIMER ON in operation?
Cooling (Heating) efficiency is not good. 	• Is SET TEMP. suitable? • Is air inlet or outlet obstructed? • Are air filters dirty? • Are the windows and door closed? • Is indoor fan speed set at low speed? • Is there any other heat source in your room?
Wireless Remote controller is not available. 	• Remote controller can't be used occasionally when the air conditioner is disturbed or changing its functions frequently. At that time, pull out the power plug and insert it again to recover the operation. • Is the remote controller out of effective disance to the indoor unit? Are there any obstruction between the remote controller and the signal receptor? • Replace the worn batteries of remote controller if the voltage of the batteries is not sufficient.

◆ Troubleshooting

Phenomenon	Troubleshooting
Indoor unit cannot deliver air	• In HEAT mode, when the temperature of indoor heat exchanger is very low, that will stop deliver air in order to prevent cool air. (Within 3min) • In HEAT mode, when the outdoor temperature is low or high humidity, there are much frost be formed on the outdoor heat exchanger, that the unit will automatically defrost, indoor unit stop blowing air for 3-12mins. During the defrosting, there is water flowing out or vapor be produced. • In dehumidifying mode, sometimes indoor fan will stop, in order to avoid condensing water be vaporized again, restrain temperature rising.
Moisture on air outlet vent	• If unit is running under the high humidity for a long time, the moisture will be condensed on the air outlet grill and drip off.
If water leakage in the room	• The air humidity is on the high side. • Condensing water over flowed. • The connection position of indoor unit drainage pipe is loosed.
Noise from indoor unit emitted.	• The sound of fan or compressor relay is switching on or off. • When the defrosting is started or stop running, it will sound. That is due to the refrigerant flowed to the reverse direction.
H1: Defrosting	• It is normal.

Immediately stop all operations and plug out, contact the dealer in following situations.

There is harsh sound during operation.
The terrible odors emitted during operation.
Water is leaking in the room.
Air switch or protection switch often breaks.
Carelessy splash water or something into unit.
There is an abnormal heat in power supply cord and power plug.

▶ Stop running and pull out of the plug.

◆ Installation service- Notices for installation

Important Notices

1. The unit installation work must be done by qualified personnel according to the local rules and this manual.
2. Installation must be performed in accordance with the requirements of NEC and CEC by authorized personnel only.
3. If the air conditioner has not plug, directly connect it into the fixed circuit, a breaker should be installed in the fixed circuit. All pole of this breaker should be switching off and the distance of the contact should be at least 3mm.

Basic Requirements For Installation Position

Install in the following place may cause malfunction. If it is unavoidable contact with service center please:

- Place where strong heat sources, vapors, flammable gas or volatile object are emitted.
- Place where high-frequency waves are generated by radio equipment, welders and medical equipment.
- Place where a lot of salinities such as coast exists.
- Place where the oil (machine oil) is contained in the air.
- Place where a sulfured gas such as the hot spring zones is generated.
- Other place with special circumstance.

Indoor Unit Installation Position Selection

1. The air inlet and outlet vent should be far from the obstruction, make sure that the air can be blown through the whole room.
2. Select a position where the condensing water can be easily drained out, and the place is easily connected for outdoor unit.
3. Select a location where the children can not reach.
4. Can select the place where is strong enough to withstand the full weight and vibration of the unit. And will not increase the noise.
5. Be sure to leave enough space to allow access for routine maintenance. The height of the installed location should be 250 cm or more from the floor.
6. Select a place about 1m or more away from TVset or any other electric appliances.
7. Select a place where the filter can be easily taken out.
8. Make sure that the indoor unit installation should accord with installation dimension diagram requirements.

◆ Notices for installation

Safety Requirements For Electric Appliances

1. The power supply should be used the rated voltage and AC exclusive circuit, the power cable diameter should be satisfied.
2. Don't drag the power cable emphatically.
3. It should be reliably earthed, and it should be connected to the special earth device, the installation work should be operated by the professional.
   The air switch must have the functions of magnetic tripping and heat tripping, in order to protect the short circuit and overloading.
4. The min. distance from the unit and combustive surface is 1.5m.

Note:

- Make sure that the Live wire or Zero line as well as the earth wire in the family power socket can not be wrong connected, there should be reliable and no short circuit in the diagram.
- wrong connection may cause fire.

Earthing requirements

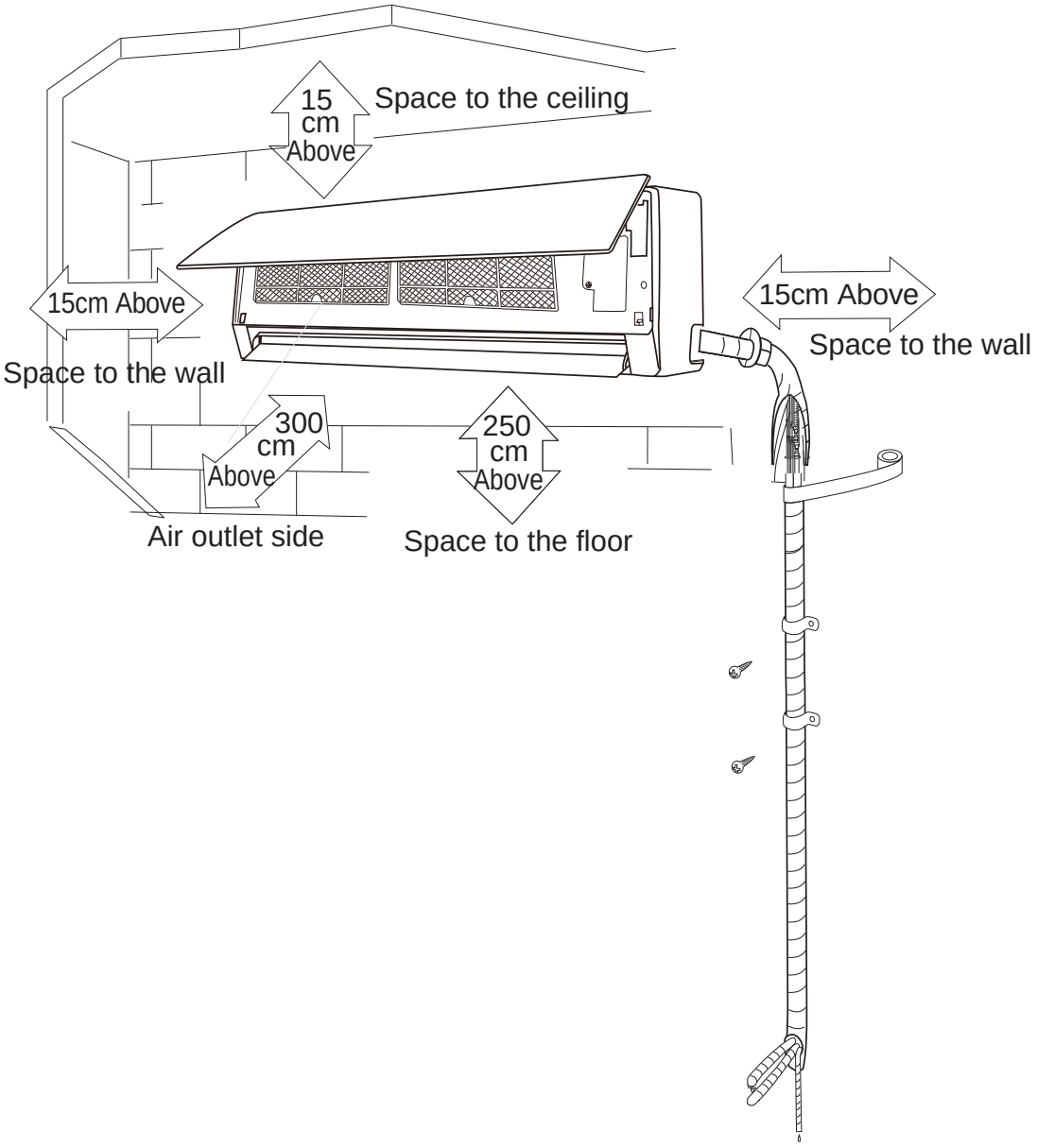
1. Air conditioner is type I electric appliance, thus please do conduct reliable earthing measure.
2. The yellow-green two-color wire in air conditioner is earthing wire and cannot be used for other propose. It cannot be cut off and be fix it by screw, otherwise it would cause electric shock.
3. The earth resistance should accord to the National Criterion ·
4. The user power must offer the reliable earthing terminal. Please don't connect the earthing wire with the following place:
   ① Tap water pipe ② Gas pipe
   ③ Contamination pipe
   ④ Other places that professional personnel consider them unreliable.

Others

1. The connection method of unit and power cable as well as the interconnect method of each isolated component should refer to the circuit diagram stick on the unit.
2. The model of the blown fuse and rated value should refer to the silk-screen on the controller or fuse sleeve.
3. The appliance shall be installed in accordance with national wiring regulations.
4. This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.
5. Children should be supervised to ensure that they do not play with the appliance.

Installation dimension diagram

Installation dimension diagram



Install indoor unit

Install the rear panel

1. Always mount the rear panel horizontally. As the water drainage pipe at the left, when adjusting the rear panel, this side should not be too high; the right side should be slightly high.
2. Fix the rear panel on the selected location.
3. Be sure that the rear panel has been fixed firmly enough to withstand the weight of an adult of 60kg, furthermore, the weight should be evenly shared by each screw.

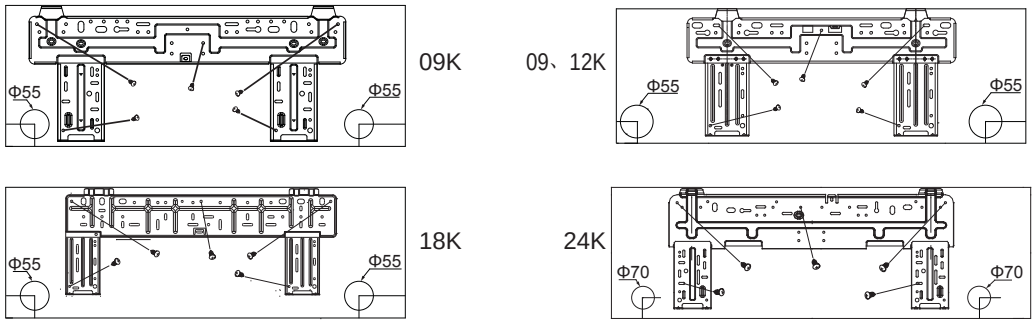
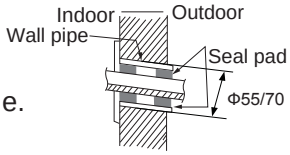


Fig.1

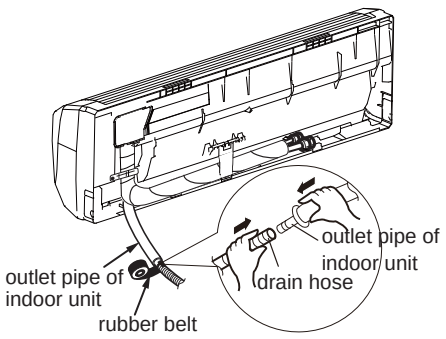
Install the piping hole

1. Make the piping hole(Φ55/70) in the wall at a slight downward slant to the outdoor side.
2. Insert the piping-hole sleeve into the hole to prevent the connection piping and wiring from being damaged when passing through the hole.

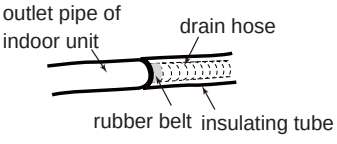


Installation of Drain Hose

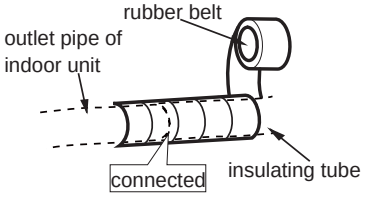
1.Connect the drain hose to the outlet pipe of the indoor unit. Bind the joint with rubber belt.



2.Put the drain hose into insulating tube.

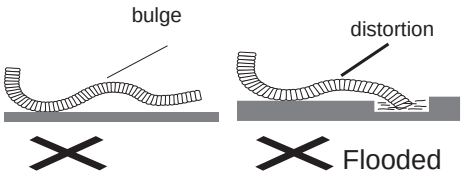


3.Wrap the insulating tube with wide rubber belt to prevent the shift of insulating tube. Slant the drain hose downward slightly for smooth drainage of condensing water.



◆ Install indoor unit

Note: The insulating tube should be connected reliably with the sleeve outside the outlet pipe. The drain hose should be slanted downward slightly, without distortion, bulge or fluctuation. Do not put the outlet in the water.



Connect indoor and outdoor electric wires

1. Open the front panel upwardly.
2. Screw off the fixing screw of cover plate and screw off cover plate.
3. Put the power connection cable through the back of indoor unit wire hole and take it out.
4. All the wiring should be connected according to the circuit diagram on the unit.
5. Put the power connection cable the section, which with sheath into wire groove, and cover the cover plate, screw on the fixing screw, tighten the connection wire.
6. Cover the front panel cover.
7. For the cooling and heating unit, signal control wire can be passed through the connection of connector and indoor unit, and use the wire clip that is under the body case, tighten the signal control wire.

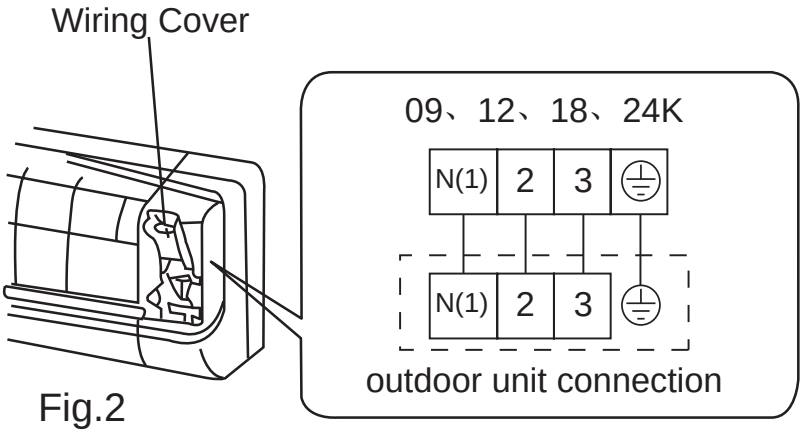


Fig.2

NOTE:

When connecting the electric wire if the wire length is not enough, please contact with the authorized service shop to buy a exclusive electric wire that is long enough and the joint on the wire are not allowed.

- The electric wiring must be correctly connected, wrong connection may cause spare parts malfunction.
- Tighten the terminal screw in order to prevent loose.
- After tighten the screw, slightly pull the wire and confirm whether is it firm or not.
- If the earth wire is wrong connection, that may cause electric shock.
- The cover plate must be fixed, and tighten the connection wire, if it is poor installed, that the dust, moisture may enter in or the connection terminal will be affected by outside force, and will cause fire or electric shock.
- Leakage circuit-breaker and air switch of correct capacity must be installed.

◆ Install indoor unit

Install the indoor unit

- The piping can be lead out from right, right rear, left, left rear.

1. When routing the piping and wiring from the left or right side of indoor unit, cut off the tailings from the chassis in necessary. (show in Fig.3)
   (1) Cut off the tailings 1 when routing the wiring only;
   (2) Cut off the tailings 1 and tailings 2 when routing both the wiring and piping. (or 1, 2, 3);
2. Take out the piping from body case, wrap the piping electric wire, water pipe with tape and put them th-rough the piping hole. (As show in Fig. 4)
3. Hang the mounting slots of the indoor unit on the upper tabs of the rear panel and check if it is firm enough. (As show in Fig.5)

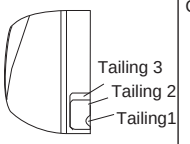


Fig.3

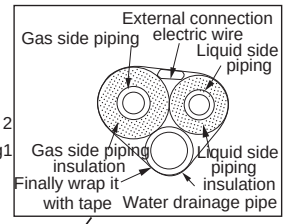
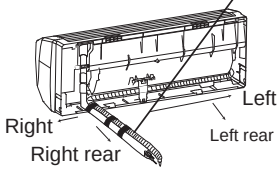


Fig.4



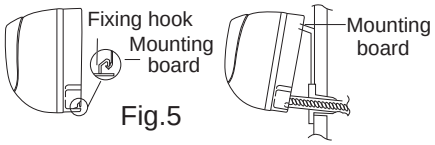


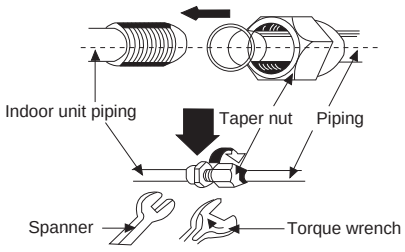
Fig.5

Install the connection pipe

1. Align the center of the piping flare with the relevant valve.
2. Screw in the flare nut by hand and then tighten the nut with spanner and torque wrench refer to the following.

   Tightening torque table

Hex nut diameter	Tightening torque (N·m)
Φ6	15～20
Φ9.52	31～35
Φ12	50～55
Φ16	60～65
Φ19	70～75



NOTE: Firstly connect the connection pipe to indoor unit, then to outdoor unit; pay attention to the piping bending, do not damage the connection pipe; the joint nut couldn't tighten too much, otherwise it may cause leakage.

◆ Check after installation and test operation

Check after installation

Items to be checked	Possible malfunction
Has it been fixed firmly?	The unit may drop, shake or emit noise.
Have you done the refrigerant leakage test?	It may cause insufficient cooling (heating) capacity.
Is heat insulation sufficient?	It may cause condensation and dripping.
Is water drainage well?	It may cause condensation and dripping.
Is the voltage in accordance with the rated voltage marked on the nameplate?	It may cause electric malfunction or damage the part.
Is the electric wiring and piping connection installed correctly and securely?	It may cause electric malfunction or damage the part.
Has the unit been connected to a secure earth connection?	It may cause electrical leakage.
Is the power cord specified?	It may cause electric malfunction or damage the part
Is the inlet and outlet been covered?	It may cause insufficient cooling (heating) capacity.
Has the length of connection pipes and refrigerant capacity been recorded?	The refrigerant capacity is not accurate.

Test Operation

1. Before test operation

(1) Do not switch on power before installation is finished completely.
(2) Electric wiring must be connected correctly and securely.
(3) Cut-off valves of the connection pipes should be opened.
(4) All the impurities such as scraps and thrums must be cleared from the unit.

2. Test operation method

(1) Switch on power, press "ON/OF" button on the wireless remote controller to start the operation.
(2) Press MODE button, to select the COOL, HEAT, FAN to check whether the operation is normal or not.

◆ Installation and Maintenance of Micro Particle Filter

Installation Instructions

1. Forcibly pull the panel for a specific angle from the two ends of the front panel according to the arrow direction. Then pull the air filter downwards to remove it. (See Fig.a)

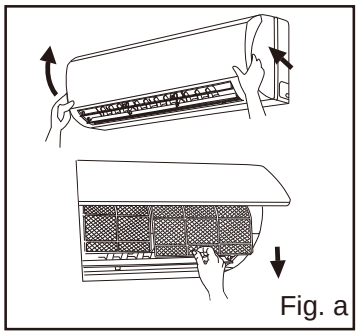


Fig. a

2. Mount the Micro Particle Filter onto the air filter, (as shown in Fig.b). If the air filter cannot be in-stalled, please mount the Micro Particle Filter on the front case. (as shown in Fig.c).

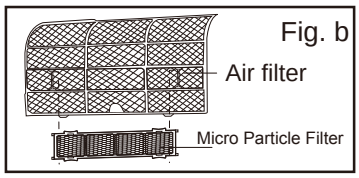


Fig. b

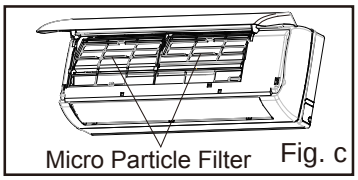


Fig. c

3. Mount the air filter properly along the arrow direction in Fig.d, and then close the panel cover.

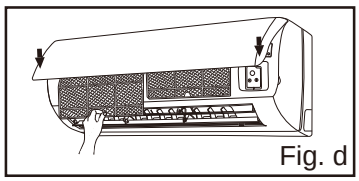


Fig. d

Cleaning and Maintenance

Take out the healthy filter before cleaning and reinstall it after cleaning according to the installation instruction. Pay special attention to that silver ion filter can't be cleaned with water, while active carbon, photocatalyst, low temperature conversion (LTC) catalyst, formaldehyde eliminator, catechin or mite killing filter can, but can't with brush or hard things. Dry it in the shade or sun after cleaning, but not by wiping.

Service Life

The healthy filter commonly has its usage lifetime for one year under normal condition. As for silver ion filter, it is invalid when its surface becomes black (green).

- This supplementary instruction is provided for reference to the unit with healthy filter. If the graphics provided herein is different from the physical goods, the latter one shall prevail. The quantity of healthy filters shall be based on the actual delivery.

◆ Configuration of connection pipe and additional volume of refrigerant

1. Standard length of connection pipe
   5m、7.5m、8m
2. Min length of connection pipe
   For the unit with standard connection pipe of 5m, there is no limitation for the min length of connection pipe. For the unit with standard connection pipe of 7.5m and 8m, the min length of connection pipe is 3m.
3. Max length of connection pipe

Sheet 1 Max length of connection pipe Unit: m

Capacity	Max length of connection pipe		Capacity	Max length of connection pipe
5000 Btu/h（1465 W）	15		24000 Btu/h（7032 W）	25
7000 Btu/h（2051 W）	15		28000 Btu/h（8204 W）	30
9000 Btu/h（2637 W）	15		36000 Btu/h（10548 W）	30
12000 Btu/h（3516 W）	20		42000 Btu/h（12306 W）	30
18000 Btu/h（5274 W）	25		48000 Btu/h（14064 W）	30

4. The calculation method of additional refrigerant oil and refrigerant charging amount after prolonging connection pipe
   After the length of connection pipe is prolonged for 10m at the basis of standard length, you should add 5ml of refrigerant oil for each additional 5m of connection pipe.
   The calculation method of additional refrigerant charging amount (on the basis of liquid pipe):
   (1) Additional refrigerant charging amount= prolonged length of liquid pipe × additional refrigerant charging amount per meter
   (2) When the length of connection pipe is above 5m, add refrigerant according to the prolonged length of liquid pipe. The additional refrigerant charging amount per meter is different according to the diameter of liquid pipe. See Sheet 2.

Configuration of connection pipe and additional volume of refrigerant

Sheet 2. Additional refrigerant charging amount for R22, R407C, R410A and R134a

Diameter of connection pipe mm		Indoor unit throttle	Outdoor unit throttle	
Liquid pipe	Gas pipe	Cooling only, cooling and heating (g / m)	Cooling only (g / m)	Cooling and heating (g / m)
Φ6	Φ9.5 or Φ12	20	15	20
Φ6 or Φ9.5	Φ16 or Φ19	50	15	50
Φ12	Φ19 or Φ22.2	100	30	120
Φ16	Φ25.4 or Φ31.8	170	60	120
Φ19	-	250	250	250
Φ22.2	-	350	350	350

Note: The additional refrigerant charging amount in Sheet 2 is recommended value, not compulsory.

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